

Figure 25. Gully initiated by tractor logging.



If forensic monitoring is done when runoff is still relatively high, then instream monitoring can be used to detect sources of significant pollution. Inspect watercourses that drain large portions of the THP area. If the water is muddy, check to see if noticeable sediment is coming from any hillslope features within the watershed. Cause-and-effect can be determined if the water becomes noticeably muddy below a hillslope feature such as a road crossing or unstable area.

4.4. Effectiveness Monitoring:

Effectiveness monitoring is generally required for Waiver categories 3 and 4, and for Notice of Emergency Timber Operations related to fire salvage (Figure 2).

Effectiveness monitoring consists of visual monitoring to evaluate whether particular management measures were successful in preventing significant pollution during the previous winter period. The timeframe for monitoring is March 15th to June 15th.

Effectiveness monitoring is conducted by the discharger (i.e., landowner) through site inspections.

Effectiveness monitoring may be applied at a range of spatial scales. Effectiveness monitoring may include visual hillslope monitoring (observations on the harvested slopes) or visual instream monitoring (evaluation of instream conditions). However, effectiveness monitoring is best done at the hillslope scale.

Effectiveness monitoring is essentially the same as forensic monitoring, except it's done at the end of the winter period or after. As in implementation monitoring, the landowner should look at the following hillslope features and inspect them for signs of sediment delivery to watercourses.

1. Timber harvest activities within or near unstable areas;
2. Constructed or re-constructed Class I, II, or Class IV (with domestic use) crossings;
3. Class I, II, or IV (with domestic use) watercourse and lake protection zones where ground based equipment operations have occurred (i.e., tractor crossings);
4. Road construction or reconstruction within 500 feet of a Class I, II, or IV (with domestic use) watercourse;
5. Landing construction or re-construction within Class I, II, or IV (with domestic use) watercourses;
6. Ground-based equipment on areas classified as high or extreme erosion hazard rating that have the potential to impact water quality;
7. Ground-based equipment on slopes greater than 65% or slopes over 50% classified as high or extreme erosion hazard rating;

When conducting effectiveness monitoring in these areas, look for erosion features (rills; gullies; landslides) that transport sediment to a watercourse. If failed management measures cause, or may cause, 10 or more cubic yards of sediment to be delivered to a watercourse, than a visual inspection of instream conditions is needed.

4.5. Photo-Point Monitoring:

Photo-point monitoring is generally not required for most landowners, except under special circumstances (Figure 9). Photo-point monitoring is a component of implementation, forensic, and effectiveness monitoring. For more information on photo-point monitoring see the Guidelines for Photo-point Monitoring.

5.0. Reporting of Monitoring Results

5.1. Developing an Inspection Plan

The development and implementation of an inspection plan is required for landowners enrolled under Waiver categories 2, 3, 4, and 5. The inspection plan should outline how and where the various monitoring strategies (i.e., implementation, effectiveness, forensic, etc.) will be implemented. An inspection plan should state the general monitoring objectives, monitoring assumptions, and monitoring methods.

The general objectives of all inspection plans should be the following:

1. Ensure that all management measures are installed and functioning prior to rain events (i.e., implementation monitoring);
2. Ensure that management measures are effective in controlling sediment discharges throughout the winter period (i.e., effectiveness monitoring);
3. Ensure that no new sediment sources develop during the winter period (i.e., forensic monitoring).

Arguably, the most important component of an inspection plan is identifying the portions of the THP that have the highest likelihood of affecting water quality. Therefore, inspection plans must describe which portions of the THP will be visited during monitoring activities.

For THPs and timber sale projects that exceed 100 acres in size, the landowner must include a monitoring point (inspection location) site map. The site map shall include monitoring points/inspection locations to be visited during the implementation, forensic, and effectiveness monitoring. Monitoring points and inspection locations can also include the portions of the plan that are readily visible from access roads. Monitoring points include:

- Visual Monitoring Points – Visual monitoring points shall be delineated on the monitoring point site map and include roads, watercourse crossings, landings, skid trails, water diversions, known or suspected landslides, and all accessible watercourse confluences.
- Photo-point monitoring points shall be delineated on the monitoring point site map and shall be identified in the field by use of rebar, flagging or other method that will last throughout the active discharge period of the proposed project. Implementation photo-point monitoring is automatically required when conditions listed for soils, unstable areas and large watercourse crossings in Category 4, Eligibility Criteria b. are present. Forensic photo-point monitoring is required when a significant discharge of sediment is detected or when failed management measures cause or may cause the release of 10 cubic yards (or more) of sediment to watercourses. Photo-point monitoring is required when Effectiveness Monitoring indicates that there were management measure failure(s) that resulted in a significant discharge of sediment to a Class I or Class II watercourse. Effectiveness photo-point monitoring shall include photos of streambed conditions immediately downstream of areas where significant discharges of sediment occurred. Monitoring points for Category 3 (nonfederal lands) will be determined during the pre-harvest inspection when Regional Board staff is present.

5.2. Annual Reporting

Landowners must submit an Annual Monitoring Report to the Executive Officer by July 15 for inspections covering the previous winter period for every year a timber harvest activity is enrolled in the Waiver. An Annual Monitoring Report need not be submitted for timber harvest activities that were started after the winter period until the following year. The Annual Monitoring Report shall include the date and type of each inspection, the inspector's name and title, the location of each inspection including the name and number of the plan, notice, sale or project, and the title and name of the person submitting the report, the inspection findings, any photos along with the date and time they were taken, and shall describe how the requirements of the Monitoring and Reporting Program were met. A landowner may submit a single Annual Monitoring

Report for all timber harvest activities conducted for the year under a CDF approved Sustained Yield Plan (SYP).

Examples of Annual Monitoring Report forms are included in the back of the document. Forms 1A, 1B, and 1C provide an Annual Reporting template for the implementation, forensic, and effectiveness phases of monitoring, respectively. Forms 1A, 1B, 1C can also be used as field forms. Depending upon the monitoring requirements for the timber harvest activity, one or more of the forms can be submitted as an Annual Report. For landowners with multiple THPs, we suggest that monitoring activities also be summarized on a summary spreadsheet. Form 2 provides a format for summarizing monitoring activities for landowners with multiple THPs.

5.3. Violation Reporting

Landowners shall report violations, by telephone, no later than 48 hours after detection. This includes violations, or suspected violations, of an applicable water quality control plan requirement, failure of a major management measure (i.e., large fill; watercourse diversion; or failure of a road or skid trail that delivers to a watercourse), any new landslide that may discharge sediment to watercourses, and any violation of the Eligibility Criteria and Conditions listed in the Waiver (Attachment A). A written report regarding such violations or management measure failures shall be submitted within 14 days following detection and shall include the following:

- Date the violation(s) or failure(s) were discovered;
- Name and title of the person(s) discovering the violation(s) or failure(s);
- Map indicating location of violation(s) or failure(s);
- Nature and extent of violation(s) or failure(s);
- Photos of site characterizing the violation(s) or failure(s);
- Corrective management measures implemented to date;
- Implementation schedule for additional corrective actions;
- Signature and title of person preparing report.

5.4. Report Submission and Contact Information

Annual reports can be sent as paper copies or on a compact disc (CD) along with a cover letter. Annual reports for THPs filed in **Tehama, Shasta, Lassen, Glenn, Butte, Siskiyou, Yuba, Sierra, Modoc, or Plumas** counties shall be submitted to the Redding office:

Central Valley Regional Water Quality Control Board
Attn: Timber Harvest
415 Knollcrest Drive, Suite 100
Redding, CA 96002

Annual reports for THPs filed in **Lake, Nevada, Placer, El Dorado, Amador, Calaveras, or Tuolumne** counties shall be submitted to the Sacramento office:

Central Valley Regional Water Quality Control Board
Attn: Timber Harvest
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Annual reports for THPs filed in **Fresno, Kern, Madera, Mariposa, or Tuolumne** counties shall be submitted to the Fresno office:

Central Valley Regional Water Quality Control Board
Attn: Timber Harvest
1685 "E" Street
Fresno, CA 93706-2007

For specific questions regarding monitoring requirements, please contact the Regional Board staff listed at the bottom of the following website:

http://www.waterboards.ca.gov/centralvalley/water_issues/timber_harvest/

6.0. Literature Cited

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